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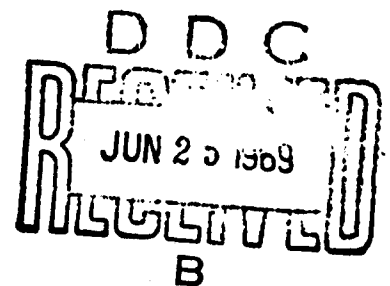
Officer Training Research and Its Implications for Executive Training

by

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Prefatory Note

This paper was presented as part of a symposium entitled "The Implications of Military Training Research for Industry." The research was undertaken by Division No. 5 (Air Defense) of the Human Resources Research Office at Fort Bliss, Texas, as part of Work Unit SAMOFF, Systematic Analysis of Training Requirements and Procedures for Surface-to-Air Missile Battery Officers.

Because of the continuing relevance of the subject matter of the paper, it is being issued as part of the HumRRO Professional Paper series. This series was initiated in order to provide permanent record of specialized aspects of HumRRO work, and deposit in the scientific and technical information storage and retrieval systems of the Department of Defense and the Federal Clearinghouse.

OFFICER TRAINING RESEARCH AND ITS IMPLICATIONS FOR EXECUTIVE TRAINING

Edgar M. Haverland

INTRODUCTION

To provide a framework for the research to be discussed, I should like first to set out a point of view, then illustrate the application of this view by describing several research studies, and, finally, point out some tentative implications for executive training.

Before proceeding along these lines, I would like to acknowledge the help of two colleagues in preparing this presentation. Mr. Wayne Frederickson of Baylor University, Waco, Texas, has been my research assistant, literature searcher, and "idea anvil." Dr. Harry L. Ammerman, of HumRRO Division No. 5, Fort Bliss, Texas, has developed some very useful conceptions of how officer behavior may be described generally, which I will present later.

Also, this set of ideas should not be labeled a "HumRRO point of view," since I am speaking as an individual. However, the influences that have shaped my thinking on these matters have operated mainly within the HumRRO organization.

Point of View

The point of view I wish to present may be described as that of hard-headed pragmatism. Very generally, such a view would ask of any process or situation: "How does it work?" and "How can it be made to work better?"

This point of view has been applied in studies on the training of many types of persons, from the combat infantryman to the highly trained electronics technician, as well as to the training of officers. In studies on training, its application usually takes the form of obtaining answers to questions such as:

- (1) What does the (effective, qualified) man actually do on the job?
- (2) What does he have to know (or be able to perform) in order to accomplish these things?
- (3) How can we arrange more efficient learning of this behavior?
- (4) How can we be sure that the man has actually learned this job-related behavior?

The answer to the first question—what the man actually does on the job—takes the form of a job description. For most purposes, the more detailed this description, the better.

The second question, on what a man must know in order to do the job, leads to the distinction between "need-to-know" and "nice-to-know" information. Vigorous use of a scalpel is recommended for any training course that contains more than a minimum of the latter category.

To answer the third question, on how more efficient learning can be arranged, more use is made of the results of fundamental psychological research than in the other phases of this approach. Major reliance is placed on a number of "learning principles" developed and tested during several generations of psychological research.

Answering the fourth question, on how we can be sure that the man has learned, usually involves the construction of a proficiency test. The main idea is to make the test as nearly as possible like the real job, thus avoiding or reducing greatly the problem of obtaining a valid measure or predictor. This also usually means that there is little need for the more involved "statisticizing" that characterizes most paper-and-pencil psychometrics.

Two additional emphases characterize work being done under the guidance of this point of view. First, this work is clearly aimed at improving performance in a specified job, rather than at studying, say, leadership, in a generalized fashion. Second, this work is firmly anchored in what the man on the job does (or should do), rather than in emphasizing generalized traits or processes, such as consideration, dominance, communication, or motivation.

RESEARCH ON OFFICER TRAINING

Subjects

The studies of officer training that I will describe all deal with company or battery level officers, and mainly with the junior officers or lieutenants in such organizations, the platoon leaders. These men are in their 20s, in nearly all cases today are college graduates, and are responsible for leading or supervising groups of perhaps 30 to 50 men. Sometimes, they may also have the responsibility for supervising the maintenance and operation of complex equipment valued at a million dollars or more, and perhaps also have responsibilities connected with nuclear devices. Their subordinates will often be much more highly trained than they in the technical aspects of a weapon system. So far, little research has been done on higher ranking officers¹, since colonels and generals have not bared their breasts to psychologists in any fashion at all resembling the behavior of the middle- and upper-level executives in industry in recent years.

The OFFTRAIN Studies

Before discussing in more detail the studies of officer training carried out at Fort Bliss, I would like to mention another series of

¹Ed. Note—A current exception to this is research under HIGHLEAD, including *Leadership at Senior Levels of Command*, by Joseph A. Olmstead, HUMRRO Professional Paper 5-68, February 1968.

HumRRO studies known by the code name OFFTRAIN, planned and carried out under the direction of Dr. Lange. He will be discussing them in more detail at this convention.¹ These studies reflect some elements of the point of view I have outlined. The general objectives of the series were to identify the behaviors that characterize effective platoon leaders, and to develop a course of training designed to teach these behaviors.

A major effort was made to learn what specific behaviors characterize effective platoon leaders, as rated by the platoon leaders' followers, and also by their superior officers. In the first study (1), platoon members were interviewed at length to obtain a comprehensive list of specific, concrete behaviors actually observed in the interactions of the platoon leader with his subordinates. In a second study (2), a Leadership Activities Questionnaire was used to obtain information on the frequency of various types of platoon leader behavior. In both studies, the frequency of platoon leader behavior in various categories was correlated with "follower" ratings and with "superior" ratings. Thus it was possible to specify the behaviors that characterize the effective platoon leader, as judged by both platoon members and company commanders.

In summary, three general types of behavior were found to be quite important in both studies:

- (1) Clear communication of standards for platoon members' performance, and of constructive criticism of their performance.
- (2) Appropriate use of reward and punishment, with performance consistently emphasized as the basis for this reinforcement. An important distinction here is that between performance deficiencies caused by lack of suitable motivation, for which punishment is appropriate, and those caused by lack of ability.
- (3) Handling disruptive influences. This involves generally the platoon leader's concern for the welfare of his men, as expressed in protecting them from unfair treatment or excessive work assignments and in helping them in difficult work situations.

It should be mentioned that while these findings are stated as generalizations, they are based on a firm foundation of objective information about specific, discrete pieces of platoon leader behavior.

It can be seen that this research has a good deal in common with the Ohio State University Leadership Studies (3). A major difference, important in the framework of this discussion, is that the OFFTRAIN work is much more firmly grounded in observation of specific, concrete items of behavior, exhibited by members of the particular group of leaders with which the research was primarily concerned.

¹Carl J. Lange, *Identifying and Measuring Leadership Characteristics of the Officer*, paper for symposium at American Psychological Association convention, New York City, September 1961.

It should be noted that the OFFTRAIN studies deal with the platoon leader's behavior mainly from the point of view of his subordinates. Criterion ratings of platoon leader effectiveness were obtained from company commanders, as well as from platoon members, in both studies. However, the relationships of the measures of behavior frequency, based on the reports of subordinates, with this "superior" criterion were much lower than those with the "follower" criterion, and, taken by themselves, would not be at all impressive.

The findings in these studies suggest that there must be other behaviors, not included in the set gathered from the platoon leader's subordinates, that have a lot to do with how a platoon leader is rated by his company commander. Since it is the company commander, and not the platoon sergeant, who fills out the lieutenant's efficiency report, a comprehensive approach to the platoon leader's position must consider this side of the job and give it a good deal of weight. In studies carried out at Fort Bliss, a more comprehensive approach to the officer's job is employed.

The SAMOFF Studies

The main series of studies that I wish to discuss has been underway at HumRRO Division No. 5 (Air Defense), Fort Bliss, Texas, known by the code name, SAMOFF, Systematic Analysis of Training Requirements and Procedures for Surface-to-Air Missile Battery Officers. The original intention was to apply all major aspects of this pragmatic point of view to the training of junior officers for the Army's NIKE Air Defense systems. This would have required four studies—job descriptions, training objectives, revised training course, and proficiency tests.

For a variety of reasons, this plan hasn't been carried through in its original form, but two of the major pieces are completed and a third is nearing completion. Job descriptions for the four battery officer positions were prepared in the first study (4). The second study (5), was devoted to constructing a battery of job-oriented proficiency tests, making the tests as similar as possible to the actual job.

The third SAMOFF study¹ is aimed at developing a methodology for deriving precise and specific training objectives for a formal school course for junior officers. It has been necessary to describe the officer's job in more detail than had been done in the first study. It was found that describing an officer's job in detail was extremely difficult. The specific behavior of officers in a given situation may vary widely, from officer to officer, and for the same officer from one time to another. Moreover, there are a large number of widely varying "additional duties" an officer may have to perform in addition to the normal operational and administrative functions common to all

¹Ed. Note—This research has been published as *A Model of Junior Officer Jobs for Use in Developing Task Inventories*, HumRRO Technical Report 65-10, by Harry L. Ammerman, November 1965.

officers in a particular position. This variability and flexibility is characteristic of supervisor and executive jobs generally.

Our background in approaching this problem was mainly that of describing operator jobs. In this field detailed stimulus-response descriptions of behavior have been the ideal; we labored for some time under the assumed obligation to describe officer behavior in the same fashion. However, piling up masses of detailed descriptions of the observable physical activities of the officer did not seem to be getting at the important parts of his job.

In an effort to conceptualize the officer's job in such a way as to arrive at a more meaningful description, Dr. Ammerman has developed a model or outline of officer behavior that promises to be of considerable value in understanding executive or supervisory behavior generally.¹ Before discussing this model or outline in more detail, I will give the main points:

- (1) The conception of the job as being constituted of a number of "areas of responsibility."
- (2) An emphasis on job objectives, that is, desired states of affairs within each area of responsibility.
- (3) A division of the overt activities of the officer into two categories, information-gathering activities and activities designed to achieve or maintain a desired state of affairs. The covert activities of evaluation, integration, and decision making lie in between the two categories of observable activities.

The areas of responsibility are the major "breakdowns" of the officer's job. Some examples from the analysis of the NIKE Fire Control Platoon Leader's job are:

- (1) Maintenance of the major equipment system.
- (2) Operation of this equipment in carrying out the mission of the Unit.
- (3) Manning the equipment.
- (4) Training unit personnel.
- (5) Maintaining discipline and morale.

The detailed content of each area of responsibility takes the form of a set of objectives. These objectives describe as precisely and specifically as possible the condition or state of affairs to be achieved and maintained in this area of responsibility. These objectives are obtained from regulations, directives, and all other available reflections of the relevant desires and intentions of higher levels of command.

The information-gathering activities of the officer are aimed at determining the current condition or state of affairs so that this may be compared with the desired condition or state of affairs in a given area of responsibility. When this comparison shows a discrepancy, now

¹See Ed. Note on page 4.

present or foreseen, the officer will proceed with activities designed to achieve or maintain the desired state of affairs (action activities).

Between the information-gathering activities and the action activities lies a set of activities that are not observable. The officer must evaluate the reliability, relevancy, and completeness of the information he has gathered, integrate it with what he already knows, and make a decision as to whether action is required. If action is required, he must decide which action from a set of alternatives is best, under the circumstances. This evaluation, integration, and decision-making phase may be fleeting and simple, or extended and difficult, depending on how much information must be gathered, how much the officer already knows about the general situation, the number and types of alternatives to be considered in deciding on a course of action, and the consequences of inaction or inappropriate action.

Of the various aspects of this model or outline, the two that have been most helpful in giving us a more coherent and meaningful view of the officer's job are: first, the emphasis given to objectives, and second, the evaluation, integration, and decision-making phase.

To attempt to state the objectives in each area of responsibility in the officer's job is instructive and enlightening in itself, even if one does not go on to describe the activities that serve to gather information and to act upon the objectives. Sometimes it becomes obvious that the objectives in certain areas of responsibility have not been set out very clearly or completely anywhere. This, we feel, is a matter for the officer's superiors to consider and then to decide what they actually expect of him in this area.

The actual job description lists only the areas of responsibility and associated objectives, with the related information-gathering and action activities. The implicit activities in the evaluation, integration, and decision-making phase are general in nature and ought to apply to any officer job. These activities are not listed in the job description because they are not observable, but a general conception of them has been quite useful in giving us a more coherent view of the nature and purpose of the officer's observable activities.

A fourth study in the SAMOFF series¹ has been under way for some time. Instead of constructing a revised training course dealing with the whole job of a junior officer in a NIKE system, we have concentrated on the NIKE platoon leader's role as a technical supervisor. In approaching the platoon leader's job as a technical supervisor, we have chosen to concentrate on the relatively tangible area of technical knowledge, rather than worrying about what leadership is, or what traits a good supervisor should have.

In the more general and exploratory OFFTRAIN studies described earlier, two of the three major types of behavior found to characterize

¹Ed. Note—This research has been published as *Development of Technical Training Materials for Nike Hercules Junior Officers*, by Edgar M. Haverland, HUMRO Technical Report 66-6, June 1966.

effective platoon leaders clearly require that the platoon leader be well versed in the activities of his subordinates in order to evaluate their performance. If the platoon leader is to formulate and communicate clearly the standards for the performance of his subordinates, and to reward and punish based on performance, he must know a good deal about the jobs. In an infantry platoon, it is reasonable to expect that the lieutenant be able to understand or do most things as well as any of his men. But the NIKE platoon leader will have men serving under him who have as much as 10 or 15 years of experience on complex electronic equipment. The average NIKE platoon leader, fresh out of an ROTC program with a college major in agriculture, education, history, or even psychology, can hardly expect to establish himself as an expert in complex fire control and missile guidance systems in the two years of active duty he has ahead of him.

The general question involved here is this: How much technical knowledge need an executive or supervisor have in order to adequately supervise technical operations and personnel? Our answer is: He should know enough to be able to satisfy himself that the equipment involved is operating satisfactorily, and that the persons operating and maintaining it are proficient.

Our working assumption in approaching the NIKE platoon leader's job as a technical supervisor has been that he should know enough to satisfy himself that the NIKE equipment is operationally ready, and his crew suitably trained. If he finds that something isn't working properly, we don't expect him to know all the checks that might be necessary to locate the precise malfunction in the equipment, or to personally tutor a poorly trained operator. For this, he has technicians working under him. But it is his responsibility to know whether things are operating satisfactorily, and if they are not, to initiate corrective action using the resources available to him.

In normal NIKE system preventive maintenance, there are some 94 daily, weekly, and monthly checks in the fire control area, and 16 in the launching area. Many of these checks are quite technical and complicated. Altogether they constitute an overwhelmingly formidable mass of procedures for the inexperienced platoon leader who is seeking means by which to evaluate the condition of the NIKE equipment. To cut the platoon leader's job down to size, we have looked for checks of a type such that a great many things further up the line must be right in order for this particular check to turn out satisfactorily. Such checks deal with what might be called "end-product system performance," another way of describing what we have said the technical supervisor (or any executive) should be concerned about.

One example of such a check in the NIKE system is the simultaneous tracking test, in which both the target and missile tracking radars track a single airplane that flies around the site at suitable ranges. Since both radars are tracking the same airplane, the information they send to the computer on its location and movements should be the same, within certain tolerances. This check covers a lot of ground; the functioning of two radars, the transmission of data from the radars to the computer, much of the data presentation system, and a few functions

of the computer. With a limited number of such checks, the functioning of practically all the NIKE system can be covered.

The platoon leader can get an overall evaluation of how proficient his operators are by running a drill that simulates an actual firing. The drill procedure, then, is a measure of "end-product system performance" involving both the equipment and the crew.

The first step in this study has been to select a limited set of checks and procedures that cover all important aspects of what I have called "end-product system performance." The second step has been to design and construct a suitable training program for developing in the platoon leader a good understanding of this set of checks and procedures. This good understanding requires not so much that the platoon leader know every last detail about these checks and procedures; rather, he should have a general concept of the weapon system, know the functions of its major components and their interrelations, and know particularly what portions of system function are covered by each check or procedure, and what the indicators of a satisfactory state of affairs are. For this training program,¹ a modified form of programmed instruction employing a programmed textbook format is being used, but this is another story.

IMPLICATIONS FOR EXECUTIVE TRAINING

The major implications of this work for executive training are in the areas of defining and structuring the job of the executive. What does he do, and what does he need to know in order to do these things? From the OFFTRAIN studies it is clear that he must know a good deal about what his subordinates are doing, in order to evaluate performance and reward and punish appropriately. The SAMOFF studies emphasize first that the executive's job should be described as specifically and concretely as possible, in order to know how to train for it (or, for that matter, what to look for in selecting a man for the job). Executive recruiters are becoming concerned about this, I understand, in order to be more certain that the man they recommend will measure up in the job. We would suggest, however, that a detailed, literal description of an executive's physical, observable activities is not likely to make much sense unless it is organized around a clear conception of the objectives toward which the activities are directed.

The second point from the SAMOFF studies would be that in cases where the executive cannot have expert, detailed knowledge of highly technical activities and processes that he must supervise, he should concentrate on acquiring a general understanding of the organization and its equipment and functions, and particularly on those indicators or checks that will tell him whether things are operating satisfactorily.

¹See Ed. Note on page 6.

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13. ABSTRACT A pragmatic approach to the problem of training military supervisors of technical personnel is suggested for executive training, in this paper. In this "end-product system performance" point of view, the job is defined and structured by detailed task descriptions. Training involves the statement of precise and specific objectives.		

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